

The Malabars, who were introduced into Mauritius as Coolies, would not sleep under tamarind trees, on account of their supposed noxious effects; but it is possible that superstition has something to do with their objection.

S. P. OLIVER

#### On the Origin of Certain Granitoid Rocks

DR. CALLAWAY'S interesting letter with the above heading in NATURE (vol. xx. p. 219) tempts me to send you the following paragraph from my paper in the *Quart. Journ. Geol. Soc.* for May, p. 286, in which the hälleflintas of the Arvonian there mentioned are first described:—

"The mode of behaviour of the quartz also here is particularly interesting and instructive in regard to the changes which many crystalline rocks have undergone, especially the gneisses. In some cases the quartz is seen in distinct fragments, but yet coalescing, as if attracted together by some natural affinity from the surrounding material. In the next place the grains are so compressed together (and yet distinctly fragmentary) that all other material is removed, and nests of pure quartz grains only are seen, having a very crystalline appearance. By this selective process also the darker material is brought together and made to fold round the nests, so that a banded or imperfect flow-structure is given to the rock. All this looks as if an incipient gneiss was being formed, the metamorphic action being incomplete, a kind of semi-metamorphism and softening having taken place sufficient only to allow the particles to arrange themselves according to their natural affinities."

It will be seen that the conclusions arrived at by Dr. Callaway in his recent examinations of similar rocks in Shropshire are almost identical with those previously formed by myself in Pembrokeshire. The careful microscopical examination of rocks of an intermediate type like these hälleflintas appear to be, cannot fail, I think, to clear up some of the difficulties hitherto experienced in endeavouring to explain the origin of many of the crystalline rocks.

HENRY HICKS

Hendon, July 4

#### Distribution of the Black Rat (*Mus rattus*, Linn.) in Italy

It may interest the readers of NATURE to know that the black rat is very abundant and widely distributed in Italy and her islands. In the Central Collection of Italian Vertebrata which I have founded in the Florence Zoological Museum, I have a large series of specimens from no less than fifteen localities, viz., Domodossola, Casale, Florence, Radda, Arezzo, Castelfalfi, Lecce on the continent, Bastia (Corsica), Cagliari (Sardinia), Castelbuono Madonie (Sicily), and from the islands of Elba, Pianosa, Montecristo, Giglio, and Lipari. On the smaller islands the larger *M. decumanus* does not exist at all, but elsewhere the two species live side by side. In the Florence Museum we have *M. decumanus* in the cellars, and *M. rattus* upstairs. This proves that the black rat is very far indeed from extinction with us; I should say that it is generally more abundant in Italy than its larger congener, at least such is my experience.

I may add that we have two, if not three, very distinct varieties of *M. rattus*, viz., the typical black *M. rattus*, the grey and white *M. tectorum*, Savi, and the brown hirsute *M. alexandrinus*. The two former are positively one species, and I have them from the same litter; the latter is, I believe, generally admitted to be specifically identical with *M. rattus*.

HENRY H. GIGLIOLI

Royal Zoological Museum, Florence, July 4

#### Barbed Hooklets on Spines of a Brachiopod

MR. THOMAS DAVIDSON, F.R.S., describes, on p. 275, and figures, in pl. xxxiv. of the Supplement to his "Carboniferous Brachiopoda," now on the eve of publication, some important points in the structure of *Spirifera lineata*, Martin, which specimens in my collection have revealed. In this species the shell structure is minutely punctate, and the flattened spines, which are usually broken off short, contain in their interior a double canal, that terminates upon the outer surface of the shell in a series of double pores. I have recently been fortunate enough to find a specimen from the High Blantyre limestone shales having the spines in place. It appears that these spines are provided with numerous marginal opposite hooklets usually pointing

towards the free end of the spine. So far as I am aware, this structure is unique amongst the brachiopods. Mr. Davidson has kindly undertaken to note this interesting fact in the explanation of the plates of his forthcoming monograph, the text having been printed off before this observation was made; but I should like to draw the attention of palæontologists to the point, as perhaps similar structures may be found in other brachiopods. The materials are in Mr. Davidson's hands for extended notice when his leisure allows him.

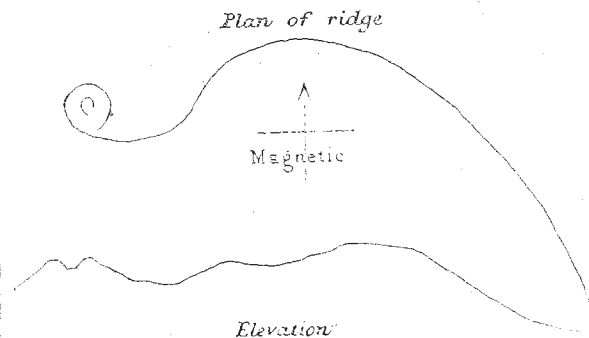
JOHN YOUNG

Hunterian Museum, Glasgow University, June

#### The Serpent Mound of Lochneil, near Oban

I WALKED over yesterday from here to examine this for myself. I started with some feelings of doubt as to whether it was not one of those fantastic shapes naturally assumed by igneous rocks, seen through the spectacles of an antiquarian enthusiast. I came away quite satisfied that it is an artificial shape, designedly given, and deliberately intended to represent a snake. It partly closes the entrance of a singular little rock amphitheatre with a waterfall at the head (the north end of it), the Loch being to the southward. There is a raised plateau to the northward of the serpent, nearly square. The ground is apparently a rubble of gravel, stones, and dirt, such as is found in moraines. The head of the snake had been opened, and showed a quantity of stones with some indication of a square chamber in the middle.

I do not pretend to any antiquarian knowledge. The impression that it suggested to me, on the spot, was that a party had endeavoured to entrench itself, at the spot, but had been attacked before the entrenchment was complete on more than one face, and that the rampart was then converted into the snake form to commemorate either a successful assault, or the successful defence of an unfinished work.



I inclose you a sketch plan and elevation, of a very rough kind, which I made on the spot and have not retouched since, except by inking over my pencil marks.

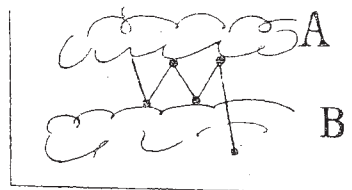
You have already (some years back), given a drawing and description of it. It should be stated that it is at the north-west corner of Lochneil, close alongside of the road from Oban to Callanach.

C. W. M.

Oban, June 19

#### The Origin of Hail

I SHOULD feel much obliged if any of your readers would kindly explain for me the following "explanation" of the origin of hail; which I have come across while reading for an examination:—



"Hail.—It consists of concentric layers of ice, and is caused by electricity. Imagine two clouds, A and B, charged with different fluids, and suppose that a drop of water falls from A. Its

fall will be very rapid, both on account of gravitation and attraction, and (a) *the evaporation will be so great, that it will be frozen.* On touching the cloud B it condenses (b) *part of its vapour*, gets thus a coating of ice, and, having the same fluid as B, it will be repelled towards A, and so on, downwards and upwards, until it becomes heavy enough to fall to the ground."

My difficulties are the following:—Whence comes the evaporation spoken of at (a)?

According to the above, when it reaches B it is frozen. What then am I to understand by the "condensation of part of its vapour (b)?"

Also, would not the two clouds, A and B, having opposite fluids, themselves unite?

If you will kindly solve me these difficulties you will greatly oblige an

IGNORAMUS

### Butterfly Swarms

WITH reference to the case mentioned in NATURE, vol. xx. p. 220, I agree with your correspondent that "local fecundity" cannot be the cause of the great number of *Vanessa cardui* observed this year in the south of England, more especially as this species does not emerge from the chrysalis until the end of July at the earliest. It therefore appears to me probable that the specimens observed have migrated (having hibernated) from the Northern Counties or even from Scotland, in consequence of the exceptional severity of the weather this season. I would also suggest that the "periodical abundance" of this butterfly, as also that of *Colias hyale* and *Edusa*, besides several others, may be caused by some peculiarity in the food-plant itself. This is rendered more likely by the fact that both *Colias hyale* and *Edusa*, which feed upon plants of the Leguminous order, and often of the same species, appear in great abundance at the same period.

I may mention that where I reside I observed many specimens of *Vanessa cardui* last year (1878). In the preceding year (1877) both *Colias hyale* and *Edusa* were exceedingly plentiful, whereas last year (1878) I did not see a single specimen of either of these butterflies.

F. H. HAINES

The Buses, Edenbridge, Kent, July 3

MR. J. H. A. JENNER says (NATURE, vol. xx. p. 220) that "last season (1878) he saw no specimens of *Vanessa cardui*, nor did he hear of any about Lewes." I would remark that *Vanessa cardui* was exceedingly abundant in the Isle of Wight; I could have caught scores in a few minutes. I would further remark that towards the close of the season I saw beds of nettles, many yards square, literally black with larvæ of *V. cardui*.<sup>1</sup> I anticipated then that they would be abundant this year, and so they are.

W. REES SWAIN

Patent Museum, South Kensington, July 4

### Intellect in Brutes

As an instance of intelligence in a cat, the following story is, I think, worthy of being recorded in your pages:—

My father, when a boy, kept a tame starling, which, having had its wings clipped, was allowed to hop about the house at random. It had been brought up, so to speak, with a little kitten, and a great friendship had been established between the two, they playing together, drinking out of the same saucer, &c., &c.

One day while the family were at dinner, with open doors, the cat suddenly pounced upon the starling, and every one thought that at last the cat's nature had got the better of its affection; but no. The cat carefully took up the starling, jumped with it on to a table, and leaving it there, rushed out of the room.

A moment after, the sound of a furious fight going on in the hall reached the ears of the astonished family, and it was then found that a strange cat had stolen into the house, with which the starling's friend was fighting. Evidently the house cat heard the approach of the enemy, and having first placed its play-fellow in a comparatively safe place, rushed out to expel the intruder.

A. DUFRÉ

Kensington, W., July 5

<sup>1</sup> [The larvæ referred to were probably those of *V. atalanta*. *V. cardui* ordinarily feeds on *thistles*.—Ed.]

THE letters of X. and of Mr. Henry Clark in NATURE, vol. xx. p. 220, referring to the recognition of portraits by dogs, are, I think, very interesting, as my observations lead me to suppose that it is very rarely that a dog takes any notice of a painting or any representation on the flat. I only know of one instance. A bull terrier of mine was lying asleep upon a chair in the house of a friend, and was suddenly aroused by some noise. On opening his eyes, the dog caught sight of a portrait of a gentleman on the wall not far from him, upon which the light was shining strongly. He growled, and for some little time kept his eyes fixed upon the portrait, but shortly satisfying himself that there was no danger to be apprehended, he resumed his nap. I have often since endeavoured to induce him to pay some attention to portraits and pictures, but without success; but sometimes he will bark at his own reflection in a looking-glass. He knows it to be his own image that he sees, for he very soon tires both of barking and looking. Other authentic instances of this kind would be valuable.

J. B. R.

July 4

I SEND the inclosed extract from the *Bedworth Guardian*. I can vouch for the fact, as Hawkesbury Station is near to me, and my son has witnessed the feats of poor Pincher. I trust that it will not be an unwelcome contribution to the interesting series of facts in evidence of animal sagacity recorded in NATURE.

Moat House, Walsgrave, Coventry, July 3

J. S. WHITTEM

"The picturesque little station at Hawkesbury Lane, between Nuneaton and Coventry, has, for some time past, been the home of a fox terrier, known as Pincher, an animal possessing almost human intelligence. Pincher—trained by its owner, Mr. Instone, to do so—would listen with marvellous patience and acuteness for the signal intimating that a train was approaching the station, and then, almost with the speed of lightning, rush to the signal-box, and, seizing the bell between its teeth, shake it heartily, and thus apprise the waiting passengers of the train's approach. This task accomplished, he would descend the steps leading from the box, proudly wagging his tail, and ready and willing, apparently, for any duty he might be called upon to perform. Often, as a train was leaving the station, Pincher would run beside it for about a hundred yards, as though acting under the impression that the engine-driver would be unable to obtain the necessary impetus without his assistance. On Sunday evening last Pincher's career was brought to an untimely end, but he died as became a dog of his attainments and renown, "in harness." Soon after seven o'clock on the evening named, two trains entered the station at one and the same time (Pincher having previously rung the bell), one going towards Nuneaton, the other in the contrary direction. Actuated by some motive or other—probably to see what was going on at the other side of the line—the dog darted under the carriages of the latter train, and one of the wheels passed over his neck, death being instantaneous."

### Snails v. Glow-worms

WHEN writing on this subject I thought my facts might be questioned, but I did not expect they would be so distorted as they have been by Mr. McLachlan at p. 219.

I simply recorded what I had seen, and in accordance with the request at the head of your column for letters to the Editor, I made my letter "as short as possible."

The heading of my letter was correct, and I described what I certainly saw—a glow-worm in the *inside* of a snail, for when the snail moved its semi-transparent skin was between me and the light. There was no phosphorescent matter on the snail.

If the glow-worm was eating the snail, as both Mr. McLachlan and Mr. Greenwood Penny suggest, then, I conclude, he attacked the *liver*, and not the *lights*, as Mr. Henslow's cat did! At all events my opponents will agree with me in thinking that the snail had a *light* supper! The fact is evidently new to these gentlemen.

I shall feel obliged by any or all of them sending me some glow-worms, and I will try the experiment again, as well as some others.

R. S. NEWALL

Gateshead-on-Tyne, July 8

### Occurrence of Boar Fish

I RECEIVED several notices of the capture of boar-fish (*Capros aper*), on the south and south-east coasts of England during June